QK
473
H3H38
BOT

NEWSLETTER

of the

Hawaiian Botanical Society

Volume IV
Number 3
June, 1965

SMITHSONIAN
AUG 10 2000
LIBRARIES

THE USE OF EUCALYPTS IN HAWAII

by Russell K. LeBarron[1]

Eucalypts were among the first of many kinds of exotic trees to be planted in Hawaii. They were introduced about 100 years ago (Bryan, 1960). This corresponds rather closely to the period when they were brought to California, Argentina, Brazil, Europe, South Africa, and other regions of the world from Australia and nearby islands. Their extremely rapid juvenile growth helped to make eucalypts popular for artificial forestation. In climates which they can tolerate, planted seedlings outstrip almost any vegetational competition within 6 to 24 months. Heights of 10 feet in two years are common, and 20 feet in two years is not unusual. At Waiakea Arboretum on the island of Hawaii, a E. botryoides reached 90 feet in less than 5 years from date of field planting (Richmond, 1963). A bulletin, "Eucalyptus Culture in Hawaii," (Margolin, 1911) is still authoritative in most respects. It listed 50 species and several varieties.

The objectives of forestation have changed. The earlier plantings were made chiefly for windbreaks and for fuel to operate sugar cane mills. Later the dominant purpose became reforestation of denuded watersheds. More or less secondary purposes were to grow wood for products such as posts. In a few instances, production of timber was suggested. Not until the past two decades has emphasis shifted to include production of lumber and veneer as among the primary purposes for tree planting.

All of the purposes that have been named are strictly utilitarian. Only occasionally do you see a eucalypt that is being grown for its decorative value. Use for aesthetic purposes is an area which has much opportunity for development in Hawaii. The majority of eucalypts are small trees and shrubs quite unlike the towering giants that we generally see and about which we read. These smaller trees are indigenous to semi-desert regions and are capable of enduring severe droughts. Multiple-stemmed plants which possess an enlarged underground rootstock or lignotuber are called "mallees." Shrubs

---

[1]Department of Land and Natural Resources, Division of Forestry

SHOUT
SHARE
IT

which do not have well developed lignotubers are called "marlocks." Some of the smaller trees and especially the mallees have highly decorative foliage and interesting and attractive flower buds, flowers, and fruit capsules. Various species differ widely in size, growth habit, and color and type of foliage. Lignotuber is a name the Australians have given a special organ on the root crown or root stock. It is an enlarged region of meristematic tissues. In case the top of a plant is destroyed, the lignotuber provides both stored food and new aerial shoots. Many other plants around the world possess the same or similar organs but the name lignotuber seems to be applied mainly by Australians. Most of the large eucalypt trees as well as the mallees have them. In California, the basal burls on seedlings of coast redwoods and on the sprouting forms of manzanita are virtually identical in appearance and functions. The wood in briar smoking pipes comes from the burls on a shrub that grows in the Mediterranean region.

Some of the eucalypts in Hawaii are believed to be the tallest angiosperm trees in the United States despite their relatively young ages. The record tree at present is one on the Island of Hawaii which recently was found to be 235 feet in height by Nobuo Honda, Wesley Wong, and Sam Kamelamela of the Hawaii Division of Forestry. It was planted between 1917 and 1921. Consequently it is about 45 years in age. It is possibly a E. saligna but I believe this identification is not positive. On Maui is another tree of about the same age, definitely a saligna, which is approximately 220 feet tall. By way of comparison, the tallest eucalypt known in California is a E. globulus, age about 70 years, height 194 feet (Metcalf and Palley, 1960). The tallest species of native angiosperm tree in the United States probably is Liriodendron tulipifera. I doubt whether trees of this species ever reached 200 feet, even at advanced ages.

Records of the Division of Forestry list 89 species of eucalypts that have been planted in Hawaii. Probably additional species have been introduced by other agencies and by private individuals. Not all of these still survive. Eucalyptus robusta outranks the others in numbers planted according to these records. It produces a wood that is suitable for veneer and lumber useful for materials such as flooring, furniture, siding, and pallets. It grows best in areas with high rainfall and can tolerate rather poor drainage. The second-most common tree is blue gum, E. globulus, which for many years was planted extensively for windbreaks. At elevations from 2500 to 6000 feet it is an excellent appearing tree but its wood is inferior. It is no longer being planted. Probably the best all-around timber tree, considering both wood quality and adaptability to a wide range of habitats, is E. saligna. Other more promising timber species include E. pilularis, E. resinifera, and E. microcorys. Good windbreak species are E. paniculata, E. sideroxylon, and E. camaldulensis, and a shrubby form of blue gum that was discovered in California, E. globulus var. compacta.

Today, planting of eucalypts for timber production has been largely discontinued in favor of other kinds of trees including Toona ciliata var. australis, Flindersia brayleyana, and Cedrella odorata. Many people are prejudiced against the eucalypts. This is the case in California, Brazil, New Zealand, and most regions where the genus has been introduced. Perhaps it is a reaction to disappointment that eucalypts are not as ideal in all respects as they at first appeared to be. But it is predictable that eucalypts will be planted for timber more in the future than they are at present. Some of the timber species are so outstanding in size, straightness of trunks, growth rates, adaptability to a variety of habitats, and absence of serious pests that they cannot be ignored. When technological advances solve some of the problems of wood seasoning and manufacturing, the place of these remarkable trees in industrial forestry will be assured.

If Hawaii did not have such a tremendous reservoir of decorative shrubs and small trees, the eucalypts of these types probably would have been put to use before this. Their use for such purposes is starting to develop in California. Sooner or later their potential for landscaping will be recognized in many parts of the world.

Citations

1. Bryan, L. W., 1960. History of Hawaiian Forestry up to 1920. Fifth World Forestry Conference.
2. Nelson, R. E., 1965. A Record of Forest Plantings in Hawaii. U.S. Forest Service. Manuscript in process of being published.
3. Margolin, Louis., 1911. Eucalyptus Culture in Hawaii. Division of Forestry Bulletin No. 1.
4. Metcalf, Woodbridge, and M. M. Palley, 1960. The Eucalyptus Grove on the Berkeley Campus of the University of California. School of Forestry and Forest Products No. 23.
5. Richmond, G. B., 1963. Species Trials at the Waiakea Arboretum, Hilo, Hawaii. U.S. Forest Service Research Paper PSW-4.

PROFILES OF HAWAIIAN BOTANISTS

J. P. MARTIN

Mr. Joe P. Martin, a charter member of the Hawaiian Botanical Society which held its first meeting on May 5, 1924, was born in Nevada City, California. He arrived in Hawaii on January 9, 1924 to join the Pathology Department, Experiment Station, Hawaiian Sugar Planters' Association, as assistant Pathologist. He became Department Head in 1929 and served in that capacity until his retirement in November 1961. He received a B.S. degree in Plant Pathology at the University of California in 1921, an M.S. in Plant Pathology at the University of Hawaii in 1927 and completed a year of graduate work in Plant Physiology at the University of Chicago in 1932.

Mr. Martin has been very prominent in the field of sugar cane pathology and has traveled extensively in other sugar cane areas of the world. He is the author of 46 papers, a book on "Sugar Cane Diseases in Hawaii" published in 1938 and was Chairman of the Editorial Committee for Volume I of "Sugar Cane Diseases of the World" published in 1964.

Mr. Martin served as president of the Hawaiian Botanical Society in 1933, was president of the Hawaiian Sugar Technologists in 1939 and of the Pacific Orchid Society in 1945. He is also a charter member of the International Society of Sugar Cane Technologists organized in Hawaii in 1924, to which he has made many contributions. Other organizations in which he has been an active member include Sigma Xi, Hawaiian Academy of Science, Bishop Museum Association and the Hawaiian Botanical Gardens Foundation, Inc.

Since his retirement, Mr. Martin served as a consultant to the Thailand Sugar Organization for four months in 1963-64, under the auspices of the Rockefeller Foundation. On November 1, 1964, he returned to the Experiment Station, HSPA as Training Coordinator.

Chester A. Wismer
Hawaiian Sugar Planters' Association

NOTES AND NEWS

HORTICULTURAL NOTES is a new publication soon to be released by the Cooperative Extension Service at the University of Hawaii. An attempt is being made to distribute information of horticultural interest to all growers, distributors, and handlers of Hawaiian Fruits, Flowers, Vegetables, and Nursery Crops.

The publication will contain brief reports of research results from the Hawaii Agricultural Experiment Station, as well as pertinent information from other states across the nation.

Any member who is interested in having his name on the mailing list might drop a card to the editor: Dr. Donald P. Watson, Department of Horticulture, University of Hawaii.

NATIONAL SCIENCE FOUNDATION SITE VISITING COMMITTEE: On May 10 and 11 the University of Hawaii was host to the National Science Foundation Site Visiting Committee, composed of Dr. George E. Livingston of the National Science Foundation, Dr. Leonard Machlis of the University of California, and Dr. Lawrence Bogorad of the University of Chicago. The committee met with the deans, department chairmen, and department members of those departments which will go into the Plant Science Building, as well as Governor Burns and Mr. John Sur, the Director of Campus Development, to discuss the proposed National Science Foundation's partial support of this building. The committee also inspected the present facilities available to the departments.

1965 BOTANICAL FORAY

Date : Monday, July 5.
Place: Wiliwilinui Ridge behind Waialae Iki Subdivision.

The 1965 Botanical Foray with Dr. George Gillett as the leader will be Monday, July 5, which is a holiday. Plans are to meet at the gate at the bottom of Wiliwilinui Ridge and consolidate into only a few cars because of limited parking at the end of the road. The members will meet in the morning, early enough to get to the summit in time for lunch. If the weather in the Koolaus is too wet that day, an alternate site in the Waianaes will be chosen. Further details will be announced at the June meeting.

JUNE MEETING

On Monday, June 7 at 7:30 p.m. in Agee Hall at the HSPA Experiment Station, Mr. Russell K. LeBarron will speak on "Instant Tree," which will cover the ecology, timber value and other uses of Eucalyptus species. Mr. LeBarron is a professional forester with 14 years of experience in the Lake States, 7 years in the northern Rocky Mountain region, and 10 in California. Since his retirement in 1963 he has been Forest Ecologist and Staff Assistant to the State of Hawaii in Resource Management.

H A W A I I A N B O T A N I C A L S O C I E T Y
c/o Department of Horticulture, 1825 Edmondson Rd., University of Hawaii
Honolulu, Hawaii 96822

OFFICERS

PRESIDENT----------Dr. James L. Brewbaker
(Dept. Horticulture, Univ. Hawaii)
VICE-PRESIDENT--Dr. Dieter Mueller-Dombois
(Dept. Botany, Univ. Hawaii)
SECRETARY----------Dr. Richard W. Hartmann
(Dept. Horticulture, Univ. Hawaii)
TREASURER----------Mr. William M. Bush
(Castle & Cooke, Inc., Box 2990, Hon.)
DIRECTORS----------Dr. Dan Palmer
Mr. Alvin K. Chock
MEMBERSHIP COMMITTEE:
Dr. Robert Warner, Dept. Horticulture
University of Hawaii
Dr. Don Heinz, HSPA Experiment Station
1527 Keeamoku Street
Honolulu, Hawaii 96822
Robert E. Fraker, Plant Quarantine Station
ARS, USDA, Box 9067, Hon. 96820

THE HAWAIIAN BOTANICAL SOCIETY was founded in 1924 to "advance the science of Botany in all its applications, encourage research in Botany in all its phases," and "promote the welfare of its members and to develop the spirit of good fellowship and cooperation among them." Any person interested in the plant life of the Hawaiian Islands is eligible for membership in this Society.

EDITORIAL STAFF

EDITOR----------Dr. George W. Gillett
ASST. EDITOR-----Dr. Richard W. Hartmann
PRODUCTION MANAGER--Mrs. Edith Hazelwood
REPORTERS:
Charles H. Lamoureux (Dept. Botany,
Univ. Hawaii)
Donald P. Watson (Dept. Horticulture,
Univ. Hawaii)
Robert W. Leeper (Pineapple Res. Inst.)
Louis G. Nickell (HSPA Expt. Station)
Paul Weissich (Honolulu Botanical
Garden)

The Hawaiian Botanical Society Newsletter is published in February, April, June, October, and December. It is distributed to all Society Members and other interested institutions and individuals with the purpose of informing them about botanical news and progress in Hawaii and the Pacific. News contributions and articles are welcomed. The deadline submission of news items is the 20th of each month prior to publication. Produced at the University of Hawaii and at the Experiment Station, HSPA. Membership dues are $3.00 per calendar year and include receipt of the Newsletter.

SMITHSONIAN INSTITUTION LIBRARIES
3 9088 01540 6846

HAWAIIAN BOTANICAL SOCIETY
c/o Department Botany
University of Hawaii
Honolulu, Hawaii 96822

BLK. RT.
ADJ. 3/8 FD.

HONOLULU HAWAII
U.S. POSTAGE
PD METER 370793

THIRD CLASS

Please post

DR. F. RAYMOND FOSBERG
PACIFIC VEGETATION PROJECT
% NATIONAL RESEARCH COUNCIL
2101 CONSTITUTION AVE., N.W.
WASHINGTON 25, D. C.